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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/783,918	02/20/2004	Dean Hoyt	2802-138-001	7264

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EXAMINER	
GREENE, JASON M	
ART UNIT	**PAPER NUMBER**
1724	

DATE MAILED: 03/22/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/783,918	HOYT ET AL.	
	Examiner	Art Unit	
	Jason M. Greene	1724	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-34* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-3,9-18,22,23 and 26-34* is/are rejected.

7)☒ Claim(s) *4-8,19-21,24 and 25* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *20 February 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *2/20/04*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claims

1. Claim 17 recites the phrase "utilizing one of said differential pressure to control the flow volume ..." in line 8. However, since the phrase recites "utilizing on of" the Examiner has assumed that the phrase was intended to read as "utilizing one of said flow volume, said humidity value and said differential pressure to control the flow volume ..." If this assumption is correct, the Examiner suggests Applicants amend the claim accordingly to correct an apparent typographical error.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claim 28 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 28 recites the flow control being accomplished using a proportional flow control valve. However, claim 17, from which claim 28 indirectly depends, recites the flow control being accomplished using a solenoid valve operating in response to the

sensed condition. Since the flow control is already claimed as being performed by the solenoid valve, it is not clear how the proportional flow control valve could be used to regulate the flow volume.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 10-14 and 16 are rejected under 35 U.S.C. 102(e) as being anticipated by Wedge et al. (US 6,719,825 B2).

Wedge et al. discloses a process for controlling the volume of the flow of dry air (46), dried to a predetermined degree of dryness, emanating from a sweep gas manifold (49) of an air dryer system, flowing over a plurality of gas/liquid fluid separating membranes (36) of said dryer system, said process comprising diverting a predetermined volume of dried air, at a predetermined pressure, to a sweep manifold, sensing a differential pressure (across the flow-sensing orifice or venture of the metering tube, see col. 9, lines 4-17) within said air drying system, and utilizing said

differential pressure to control (using metering valve 38) the flow volume of said predetermined volume of dried air diverted to said sweep manifold, wherein said flow control is performed via a proportional flow control valve (38), wherein said differential pressure sensing includes passing air through a fixed restriction (the flow-sensing orifice or venture of the metering tube) located within the proportional flow control valve, wherein said sensing of said differential pressure is accomplished between two points (upstream and downstream of the flow-sensing orifice or venture of the metering tube) within the air dryer system in Fig. 1A and col. 5, line 65 to col. 9, line 17.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. Claims 1-3, 9, 15, 17, 18, 22, 23 and 26-34 rejected under 35 U.S.C. 103(a) as being unpatentable over Wedge et al. (US 6,719,825 B2) in view of Cunkelman (US 6,128,825).

With regard to claims 1-3 and 9, Wedge et al. discloses a process for controlling the volume of the flow of dry air (46), dried to a predetermined degree of dryness,

emanating from a sweep gas manifold (49) of an air dryer system, flowing over a plurality of gas/liquid fluid separating membranes (36) of said dryer system, said process comprising diverting a predetermined volume of dried air, at a predetermined pressure, to a sweep manifold, sensing the flow volume of the remained of said dried air, and using a controller (valve 38), for achieving the predetermined degree of dryness of said air, to control the flow volume of said predetermined volume of dried air diverted to said sweep manifold, wherein the predetermined degree of dryness is measured in terms of humidity of dew point at a specified temperature and pressure in Fig. 1A and col. 5, line 65 to col. 9, line 17.

Wedge et al. does not disclose converting said flow volume to electric signals and utilizing said electric signals for controlling at least one solenoid valve to control the flow volume of said predetermined volume of dried air diverted to said sweep manifold.

Cunkelman '825 discloses a similar process for controlling the volume of the flow of dry air comprising sensing an operating condition (the status of the compressor) and converting the operating condition to electrical signals, and using a controller (250) and the electrical signals to control a solenoid valve (221) to control a flow volume of dried air diverted to a sweep manifold, wherein the controller controls the duty cycle of the at least one solenoid valve, thereby controlling the flow volume over said membranes, and wherein the duty cycle comprises repeating cycles of on/off operation (in response to the operation f the compressor) in Fig. 4 and col. 8, lines 15-30.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the electronic control of Cunkelman '825 into the

process of Wedge et al. to provide a flow control system which his readily capable of controlling the volume flow in response to other criteria, as suggested by Cunkelman '825 in col. 8, lines 25-30. Furthermore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the electronic control of Cunkelman '825 into the process of Wedge et al. to allow the flow volume control to be incorporated into a broader control system, as is well known in the art.

With regard to claims 17, 18, 22, 23 and 26-31, 33 and 34, Wedge et al. discloses a process for controlling the volume of the flow of dry air (46), dried to a predetermined degree of dryness, emanating from a sweep gas manifold (49) of an air dryer system, flowing over a plurality of gas/liquid fluid separating membranes (36) of said dryer system, said process comprising diverting a predetermined volume of dried air, at a predetermined pressure, to a sweep manifold, sensing the flow volume of the remained of said dried air or a differential pressure (across the flow-sensing orifice or venture of the metering tube, see col. 9, lines 4-17) within said air drying system, and utilizing one of the flow volume or differential pressure to control the flow volume of said predetermined volume of dried air utilizing a controller (proportional flow control valve 38) for achieving the predetermined degree of dryness of said air by controlling the flow volume of said predetermined volume of dried air diverted to said sweep manifold, wherein said differential pressure sensing includes passing air through a fixed restriction (the flow-sensing orifice or venture of the metering tube) located within the proportional flow control valve, wherein said sensing of said differential pressure is accomplished

between two points (upstream and downstream of the flow-sensing orifice or venture of the metering tube) within the air dryer system in Fig. 1A and col. 5, line 65 to col. 9, line 17.

Wedge et al. does not disclose using at least one solenoid valve to control the flow volume of said predetermined volume of dried air diverted to said sweep manifold.

Cunkelman '825 discloses a similar process for controlling the volume of the flow of dry air comprising sensing an operating condition (the status of the compressor) and converting the operating condition to electrical signals, and using a controller (250) and the electrical signals to control a solenoid valve (221) to control a flow volume of dried air diverted to a sweep manifold, wherein the controller controls the duty cycle of the at least one solenoid valve, thereby controlling the flow volume over said membranes, and wherein the duty cycle comprises repeating cycles of on/off operation (in response to the operation f the compressor) in Fig. 4 and col. 8, lines 15-30.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the electronic control of Cunkelman '825 into the process of Wedge et al. to provide a flow control system which his readily capable of controlling the volume flow in response to other criteria, as suggested by Cunkelman '825 in col. 8, lines 25-30. Furthermore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the electronic control of Cunkelman '825 into the process of Wedge et al. to allow the flow volume control to be incorporated into a broader control system, as is well known in the art.

With regard to claims 15 and 32, incorporating the electronic control of Cunkelman '825 into the process of Wedge et al. eliminates the need for a proportional flow control valve. Therefore, the pressure sensor will be located in a location other than the proportional control valve.

Allowable Subject Matter

8. Claims 4-8, 19-21, 24 and 25 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

9. The following is a statement of reasons for the indication of allowable subject matter:

With regard to claims 4-6 and 19-21, the prior art made of record does not teach or fairly suggest the processes of claims 1 or 17 wherein the controller controls at least two solenoid valves associated with differing size orifices, respectively.

With regard to claims 7, 8, 24 and 25, JP 2004-57986 teaches the processes of claims 1 and 17 wherein the sensing is the sensing the humidity value (using sensor 21) in Fig. 1 and the English language abstract. However, the publication date of the reference (26 February 2004) is after the filing date of the instant application.

The prior art made of record does not teach or fairly suggest the processes of claims 1 or 17 wherein the sensing is the sensing of the humidity values.

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The Burban et al., Morgan et al., Kühnelt, Giglia et al., JP 2001-219026, JP 2002-45638 and JP 2001-232137 references disclose similar processes. The Ginder, Jr. reference discloses a proportional flow control valve used in the Wedge et al. process.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jason M. Greene whose telephone number is (571) 272-1157. The examiner can normally be reached on Monday - Friday (9:00 AM to 5:30 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Duane Smith can be reached on (571) 272-1166. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Jason M. Greene
Primary Examiner
Art Unit 1724

3/18/06

jmg
March 18, 2006